

UNIVERSITI TEKNOLOGI MARA

**P2PMATHS: FORM 2 MATHEMATICS PATH TO
PROGRESS E-LEARNING PORTAL USING
PERSUASIVE TECHNOLOGY**

NUR AFIQAH DAMIA BINTI AZMAN

**BACHELOR OF INFORMATION SYSTEM (Hons.)
BUSINESS COMPUTING**

JULY 2025

ACKNOWLEDGEMENT

Alhamdulillah, praises and thanks to Allah because of His Almighty and His utmost blessings, I was able to finish this project within the duration given. Firstly, I would like to express my deepest gratitude to my supervisor, Dr. Elly Johana Binti Johan, for her invaluable guidance and the generous amount of time she dedicated to this project. Her insightful feedback and unwavering commitment to my academic and personal growth have been instrumental in the successful completion of this project. Next, I would like to thank my CSP650 lecturer, Miss Nor Hasnul Azirah Abdul Hamid, who motivated my submission of the final year project proposal. I am also incredibly grateful to my family and friends for their patience, love, and continuous support. Their companionship and presence have given me strength during this difficult but rewarding journey.

ABSTRACT

Learning mathematics was often challenging for students due to its abstract concepts and the need to solve complex problems. The objective of this project was to develop P2PMATHS, an online learning portal specifically designed to complement the Form 2 Mathematics curriculum in Malaysia. It addressed common difficulties faced by students in topics such as algebra, factorisation, and three-dimensional geometry. The portal was structured into modules comprising comprehensive notes, formative games and activities (without evaluation), summative quizzes (with evaluation), and self-paced practices to support learning and skill development. Persuasive technology principles including tunnelling, self-monitoring, cooperation, and liking were integrated to increase motivation and engagement. The system was developed based on the ADDIE instructional design model, and its effectiveness was assessed through functionality testing, expert evaluation, and usability testing. Construct analysis showed that 90.3% of users found the portal useful for learning, 90.3% found it easy to learn, and 87.1% reported overall satisfaction, all with low standard deviation values. Overall, P2PMATHS successfully overcame the limitations of traditional teaching methods and static digital platforms by offering a flexible, interactive, and curriculum-aligned solution that improved students' understanding, retention, and interest in mathematics.

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